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EXAMINER	
YODER III, CHRISS S	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/608,313	CUTLER ET AL.	
	Examiner	Art Unit	
	CHRISS S. YODER III	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 December 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-6,9-21,51-61,69,71 and 72* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-6,9-21,51-61,69,71 and 72* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

New Examiner of Record

The prosecution of this application has been transferred to Examiner Chriss S. Yoder, III from the docket of Examiner Gregory V. Madden. Any inquiry concerning this Office Action or earlier communications should be directed to the current Examiner of record. Current contact information is provided in the last section of this communication.

Response to Arguments

Applicant's arguments with respect to claims 1, 3-6, 9-21, 51-61, 69, and 71-72, filed December 28, 2007 have been fully considered but they are not persuasive.

Applicant argues, that the Konopka reference fails to teach the virtual director that automatically determines which view of the multiple cameras of different types to display based on the positioning of a person speaking and the ability to track the speaker in images captured by the cameras and the associated audio of the person speaking, and automatically switches between the multiple cameras of different types to display a view of one of the different sub-events (See Remarks, Pgs. 12-13). While Konopka does teach the use of multiple cameras of different types (e.g. front camera, document capture camera, etc.), the Examiner agrees that Konopka alone fails to teach a virtual director that automatically determines which view of the multiple cameras of different types to display based on the positioning of a person speaking and the ability to track the speaker in images captured by the cameras and the associated audio of the

person speaking. Further, as noted in the Remarks, Pgs. 13-28, the Applicant further argues that none of the Taylor, Ippolito, Liu, Rodriguez Jr., Tosaya, nor Liu references teach the virtual director and associated limitations of automatically determining which view of the multiple cameras of different types to display based on the positioning of a person speaking and the ability to track the speaker in images captured by the cameras and the associated audio of the person speaking, and automatically switching between the multiple cameras of different types to display a view of one of the different sub-events. Again, the Examiner agrees that none of the cited references, taken individually, sufficiently teach or suggest the virtual director that automatically determines which view of the multiple cameras of different types to display based on the positioning of a person speaking and the ability to track the speaker in images captured by the cameras and the associated audio of the person speaking, and automatically switches between the multiple cameras of different types to display a view of one of the different sub-events.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant also argues, that Tai only teaches a technique for automatically selecting a video output from among several video input sources based strictly on audio signals, not positioning of a person speaking in an event. However, the Examiner notes

the camera view is selected based on the use of the audio signals detected from multiple microphones, and is considered to detect the position of the user based on audio scores at each microphone (column 3, line 26 – column 4, line 8 and column 6, line 52—column 7, line 17, the levels are each microphone are used to determine which microphone is closest to position of the user).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. **Claims 1, 9-12, 14-17, 19-21, and 58-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konopka et al. (U.S. Pat. 5,850,250) in view of Tai et al. (U.S. Pat. 6,577,333), further in view of Taylor et al. (U.S. Pat. 7,113,201), and still further in view of Liu et al. (U.S. Pat. 6,839,067).**

2. In regard to **claim 1**, note Konopka discloses an automated system for capturing and viewing an event having event participants comprising multiple cameras of different types (front camera 111, rear camera 211, and document camera 115) simultaneously capturing images of different sub-events occurring in a space associated with an event (i.e. capturing images of different speakers in a classroom, or a document placed on a document stand), including a remote-view camera (front camera 111) positioned so as to capture a view of event participants (e.g. students) in the space associated with the

event to be transmitted to a client over the network, and a presenter view camera (rear camera 211) positioned so as to capture a view of an overview of the space associated with the event wherein a presenter (e.g. a teacher) would typically be presenting, and a controller (camera control 113) that automatically determines which view of the front camera (111) to display (i.e. which student to display while speaking), a server (CODEC machine 45 in network cabinet 101) capable of broadcasting the captured sub-events, and one or more clients in network connection (remote classrooms connected via CODEC machine 45) with said server (45) that view portions of the captured event (See Figs. 1-4 and Col. 6, Line 19 - Col. 8, Line 29). Therefore, it can be seen that Konopka fails to explicitly disclose a virtual director that automatically determines which view of the multiple cameras of different types to display by determining if a person is speaking and facing a particular direction or if the person is talking and the presenter view camera can track them and provide a higher resolution image than a 360 degree camera, and that the server is not only capable of broadcasting the sub-events, but also of recording the captured sub-events.

In analogous art, Tai discloses an automated system for capturing and viewing an event having event participants, wherein the system comprises multiple cameras of different types (i.e. a remote view camera C4 is positioned so as to capture a view of event participants in the space, and a presenter view camera, any of cameras C1-C3, positioned so as to capture a speaking presenter) capturing images of sub-events occurring in a space associated with an event, and a virtual director (video autoselector 40) that automatically determines which view of the multiple cameras of different types

to display (via video switch 50 video output) by determining if a person is speaking (via microphones A1- A3) and facing toward a particular camera, and if so a camera view captured by one of cameras C1-C3 or C4 is used (See Figs. 2 and 6, Col. 3, Line 26 - Col. 4, Line 8, and Col. 6, Line 52 - Col. 7, Line 17). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated virtual director, as taught by Tai, with the broadcasting of the captured sub-events via multiple cameras of different types, as shown by Konopka. One would have been motivated to do so because by using a virtual director to automatically determine which view of the multiple cameras of different types to display, the presenter (or another "director" in the room) does not have to manually select the camera views to be broadcast or recorded, thus making for a much more natural selection of a video source and allowing the presenter to conduct a meeting without undue interference of operating camera controls.

Also in analogous art, Taylor discloses an automated system of capturing and viewing an event (videoconference) having a multiple cameras (2-1, 2-2, 2-3, etc.) simultaneously capturing images of different sub-events, wherein a server (computer 20) is capable of recording the captured sub-events, as is taught in Fig. 1 and Col. 2, Lines 21-36. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated and the recording of the captured sub-events by the server, as taught by Taylor, with the broadcasting of the captured sub-events via multiple cameras of different types, as shown by Konopka. One would have been motivated to do so because by recording events captured during a videoconference,

both the local users and external users can review contents from the meeting that they may have missed or want to reevaluate, and they may do so based on a specific subset of archived data regarding a specific person or object captured (as taught by Taylor in Col. 1, Lines 11-17). Doing so allows a user to save valuable time sorting through the archived data that they deem pertinent.

Also in analogous art, the Liu discloses the use of a separate presenter view camera (pan/tilt/zoom camera 110 or 210) that is used to focus on a desired portion of a meeting (i.e. a presenter or principle speaker) at a higher resolution than the 360-degree camera (panoramic camera 110 or 240), as is illustrated in Figs. 2 and 3, and Col. 3, Lines 18-51. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated using the presenter view camera, as taught by Liu, with the multiple view cameras of Konopka in view of Tai and Taylor. One would have been motivated to do so because by capturing a higher resolution image of a current speaker, the conference will have a more realistic face-to-face meeting quality, as opposed to that of viewing a low resolution overview of a space containing the speaker.

3. In regard to **claim 9**, the limitations of claim 1 are taught above, and the Konopka reference further teaches that the system comprises a microphone device (microphones 13) that simultaneously captures audio data of the event. Please refer to Fig. 1 and Col. 7, Lines 15-27. Taylor also teaches directional microphone array 4 in Fig. 1 and Col. 2, Lines 21-36, and Tai teaches the microphones A1-A3 in Figs. 1-2 and Col. 3, Line 26 - Col. 4, Line 8.

4. In regard to **claim 10**, the limitations of claim 9 are taught above, and Konopka also discloses that the microphone device (13) is used to determine the direction from which an event participant is speaking (particular student who is speaking) by using sound source localization. See Col. 7, Lines 15:27.

5. In regard to **claim 11**, the limitations of claim 9 are again set forth above, and Konopka discloses that captured images of the sub-events are used in combination with sound source localization to refine the determined direction from which an event participant is speaking, as is taught again in Col. 7, Lines 15-27.

6. In regard to **claim 12**, the limitations of claim 1 are taught above by Konopka in view of Taylor, and Konopka discloses that the system is used for broadcasting an event to one or more remote clients (remote classrooms), as is taught in Col. 3,Line 61 - Col. 4, Line 3, and Col. 7, Lines 58-62.

7. In regard to **claim 14**, the limitations of claim 1 are again taught above, and Konopka further teaches that the system comprises a monitor (video monitors 101 and 201-204) for displaying one or more remote participants where the event occurs, as shown in Fig. 2a, 3, and Col. 6, Line 19 -Col. 8, Line 29.

8. In regard to **claim 15**, again the limitations of claim 1 are taught above, and Konopka discloses that the system further comprises an event kiosk (teacher's workstation 300), which is used to control event broadcast (via control panel 302), as is taught in Fig. 4 and Col. 8, Lines 38-56.

9. In regard to **claim 16**, the limitations of claim 15 are set forth above, and the Konopka reference further teaches that the event kiosk (300) further comprises a graphical user interface (control panel 302), as is taught in Col. 8, Lines 49-50.

10. In regard to **claim 17**, the limitations of claim 16 are taught above, and Konopka also teaches that the graphical user interface (302) comprises an initial display showing initial status of the system, as is taught in Col. 8, Lines 49-52.

11. In regard to **claim 19**, the limitations of claim 1 are set forth above, and Konopka also teaches a graphics capture device (document camera 115) used to capture data presented in the event, as taught in Col. 7, Lines 30-53.

12. In regard to **claim 20**, the limitations of claim 1 are taught above, and the Taylor reference also teaches an archive server (meeting archive database 60) on which recorded events are stored and wherein the archive server plays back the recorded events to the clients. Please refer to Fig. 15 and Col. 13, Lines 32-50.

13. In regard to **claim 21**, again, Konopka in view of Taylor discloses the limitations of claim 1 above, and the Taylor reference further teaches that the system comprises an archive server (meeting archive database 60) on which annotations to the captured sub-events are saved (e.g. text data stored with a link to the video data), as is shown in Col. 13, Lines 32-58.

14. In regard to **claims 58-61**, these claims are drawn toward a computer-readable medium having computer-executable instructions for carrying out operations of the system taught above in claims 1, 2, 12, and 14 by Konopka in view of Tai, further in view of Taylor. As Konopka, Tai, Taylor teach that a computer executes the system in

the above claims, claims 58-61 are rejected on the same grounds as claims 1, 2, 12, and 14.

15. Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konopka et al. (U.S. Pat. 5,850,250) in view of Tai et al. (U.S. Pat. 6,577,333), further in view of Taylor et al. (U.S. Pat. 7,113,201), and still further in view of Liu et al. (U.S. Pat. 6,839,067), and still further in view of Ippolito et al. (U.S. Pat. 6,072,522).

16. In regard to **claim 3**, the limitations of claim 1 are taught above, and while the Konopka reference does teach that the front camera (111) can pan and tilt to capture an overview of the classroom, neither Konopka, Tai, Taylor, nor Liu teach a 360-degree camera that comprises a set of cameras configured in a circular back-to-back fashion. However, noting the Ippolito reference, Ippolito teaches a video conferencing system having a 360-degree camera (video conferencing apparatus 200) comprising a set of cameras (cameras 130) configured in a circular back-to-back fashion (See Fig. 8 and Col. 13, Line 28 - Col. 14, Line 21). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the 360-degree camera of Ippolito with the multiple camera system of Konopka in view Tai, Taylor and Liu. One of ordinary skill in the art would have been motivated to do so because, as Ippolito teaches in Col. 14, Lines 15-21, such a centrally-located set of cameras enables the Capture of a video image of a newly identified principle speaker more quickly and with

less electromechanical activity and noise than would be possible with a single video camera approach (such as that employed by Konopka).

17. In regard to **claim 4**, note Liu discloses the use of a panoramic stitcher that stitches together images captured from each camera to create a panoramic image of the space in which the event occurs (multiple wide-angle cameras 110 and pan/tilt/zoom camera 120) wherein a panoramic stitcher stitches together images captured from the multiple wide-angle cameras to create a panoramic image of the space in which the event occurs, as is shown in Figs. 1-3 and Col. 2, Lines 46-59.

18. In regard to **claim 5**, the limitations of claim 1 are taught above, and while the Konopka reference teaches that the presenter (teacher) is equipped with a microphone (teacher's microphone 11), Konopka does not specifically disclose that the presenter view camera is integrated with a microphone. However, the Ippolito reference does teach that the video cameras 130, which capture images of speakers, are each integrated with a microphone 120, as is shown in Fig. 8 and Col. 13, Lines 28-52. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have integrated the microphone with the camera in the system of Konopka in view Tai, Taylor and Liu. One of ordinary skill in the art would have been motivated to do so because, as Ippolito teaches in Col. 13, Lines 28-52, the integration of the microphone with the camera allows the system to process the audio to identify the azimuthal orientation of the speaker from among the group of participants and activate the appropriate camera for capture.

19. In regard to **claim 6**, again the limitations of claim 1 are taught above, and while the Konopka reference teaches that the students are equipped with microphones (student microphones 13), Konopka does not specifically disclose that the presenter view camera is integrated with a microphone. However, the Ippolito reference does teach that the video cameras 130, which capture images of speakers, are each integrated with a microphone 120, as is shown in Fig. 8 and Col. 13, Lines 28-52. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have integrated the microphone with the camera in the system of Konopka in view Tai, Taylor and Liu. One of ordinary skill in the art would have been motivated to do so because, as Ippolito teaches in Col. 13, Lines 28-52, the integration of the microphone with the camera allows the system to process the audio to identify the azimuthal orientation of the speaker from among the group of participants and activate the appropriate camera for capture.

20. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Konopka et al. (U.S. Pat. 5,850,250) in view of Tai et al. (U.S. Pat. 6,577,333), further in view of Taylor et al. (U.S. Pat. 7,113,201), and still further in view of Liu et al. (U.S. Pat. 6,839,067), still and further in view of Rodriguez, Jr. et al. (U.S. Pat. 6,179,426).

21. In regard to **claim 13**, the limitations of claim 1 are once again shown by Konopka in view of Tai, further view of Taylor, and while the Taylor reference does show that event materials are presented on a board (flip chart 14, as shown in Fig. 1)

during a videoconference, neither Konopka, Tai, Taylor, nor Liu teaches that the system further comprises a projector for projecting event materials onto a screen. However, the Rodriguez reference teaches a videoconferencing system that comprises a projector (front projection system 100) for projecting event materials onto a screen (projections screen 102), as is shown in Fig. 1 and Col. 6, Lines 44-64. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the projector of Rodriguez with the videoconferencing system of Konopka in view of Tai, Taylor, and Liu. One would have been motivated to do so because by providing a projector in a videoconferencing system, a presenter can use previously-prepared event materials to conduct the meeting and share the materials with both local and external participants, thus saving time and providing a professional presentation.

22. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Konopka et al. (U.S. Pat. 5,850,250) in view of Tai et al. (U.S. Pat. 6,577,333), further in view of Taylor et al. (U.S. Pat. 7,113,201), and still further in view of Liu et al. (U.S. Pat. 6,839,067), and still further in view of Tosaya (U.S. Pat. 6,549,230).

23. Considering **claim 18**, the limitations of claim 15 are taught above, but neither Konopka, Tai, Taylor, nor Liu teaches that the event kiosk is located on one of the multiple cameras. However, the Tosaya reference teaches an event kiosk (portable conference center 1000), wherein the portable conference center contains a camera (video camera 1110) and microphones (audio input device 1120) to allow for videoconferencing (See Fig. 1 and Col. 7, Line 28 - Col. 9, Line 18). It would have been

obvious to one of ordinary skill in the art to have included an event kiosk on one of the cameras, as done by Tosaya, with the system of Konopka in view of Tai, Taylor, and Liu. One would have been motivated to do so because by incorporating a kiosk into a camera, the system becomes far more portable and allows for easier initial set-up by the event participants.

24. Claims 51-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konopka et al. (U.S. Pat. 5,850,250) in view of Ippolito et al. (U.S. Pat. 6,072,522), further in view of Tai et al. (U.S. Pat. 6,577,333), further in view of Taylor et al. (U.S. Pat. 7,113,201), and still further in view of Rodriguez Jr. et al. (U.S. Pat. 6,179,426).

25. In regard to **claim 51**, the Konopka reference teaches a system for conducting a distributed meeting comprising multiple cameras of different types (front camera 111, rear camera 211, and document camera 115), wherein the rear camera 211 acts as a presenter camera for capturing images of an overview of the meeting room in the area where the presenter (or teacher) would typically be presenting, a controller (camera control 113) that automatically determines which view of the front camera (111) to display (i.e. which student to display while speaking) and switches to the determined view of the associated camera to display a view of one of the different sub-events (i.e. the speaking student or teacher), a meeting server (CODEC machine 45 in network cabinet 101) for performing processing required to broadcast meeting data (See Figs. 1-4 and Col. 6, Line 19 - Col. 8, Line 29). What Konopka fails to teach is a 360-degree

camera for capturing images of participants in a meeting in substantially 360 degrees about the 360-degree camera, a whiteboard camera for capturing images of contents on a whiteboard (similar to the Konopka document camera), a virtual director that automatically determines which view of the multiple cameras of different types to display and switches between the multiple cameras of different types to display a view of one of the different sub-events by determining if a person is talking and the presenter view camera can track them and provide a higher resolution image than the 360-degree camera, and that the meeting server can perform processing required to record meeting data.

In analogous art, Ippolito teaches a system for conducting a distributed meeting, wherein the system comprises a 360-degree camera (cameras 130) for capturing images of meeting participants in a meeting (videoconference, etc.) in substantially 360 degrees about the 360 degree camera, a microphone array (microphones 120) for capturing the audio of the meeting that is synchronized with the images captured by the 360-degree camera, and a meeting server (video conferencing management unit 16) for performing processing required to broadcast meeting data (See Fig. 8 and Col. 13, Line 27 - Col. 14, Line 28). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the 360-degree camera of Ippolito, with the system of Konopka. One would have been motivated to do so because providing an overview of the meeting room would allow the external participants in the meeting view all of the participants in the meeting, not just the principle speaker, thus allowing for a more real-life interactive experience during the videoconference, and by

providing the 360-degree view cameras, the external users are given a more real-life interactive experience during the videoconference by providing view of the entire meeting facility.

Also In analogous art, Tai discloses an automated system for capturing and viewing an event having event participants, wherein the system comprises multiple cameras of different types (i.e. a remote view camera C4 is positioned so as to capture a view of event participants in the space, and a presenter view camera, any of cameras C1-C3, positioned so as to capture a speaking presenter) capturing images of sub-events occurring in a space associated with an event, and a virtual director (video autoselector 40) that automatically determines which view of the multiple cameras of different types to display (via video switch 50 video output) by determining if a person is speaking (via microphones A1- A3) and facing toward a particular camera, and if so a camera view captured by one of cameras C1-C3 or C4 is used (See Figs. 2 and 6, Col. 3, Line 26 - Col. 4, Line 8, and Col. 6, Line 52 - Col. 7, Line 17). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated virtual director, as taught by Tai, with the broadcasting of the captured sub-events via multiple cameras of different types, as shown by Konopka. One would have been motivated to do so because by using a virtual director to automatically determine which view of the multiple cameras of different types to display, the presenter (or another "director" in the room) does not have to manually select the camera views to be broadcast or recorded, thus making for a much more natural selection of a video source

and allowing the presenter to conduct a meeting without undue interference of operating camera controls.

Also in analogous art, Taylor discloses an automated system of capturing and viewing an event (videoconference) having a multiple cameras (2-1, 2-2, 2-3, etc.) simultaneously capturing images of different sub-events, wherein a server (computer 20) is capable of recording the captured sub-events, as is taught in Fig. 1 and Col. 2, Lines 21-36. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated and the recording of the captured sub-events by the server, as taught by Taylor, with the broadcasting of the captured sub-events via multiple cameras of different types, as shown by Konopka. One would have been motivated to do so because by recording events captured during a videoconference, both the local users and external users can review contents from the meeting that they may have missed or want to reevaluate, and they may do so based on a specific subset of archived data regarding a specific person or object captured (as taught by Taylor in Col. 1, Lines 11-17). Doing so allows a user to save valuable time sorting through the archived data that they deem pertinent.

Also in analogous art, Rodriguez teaches a whiteboard camera (camera 756) used to capture contents written on a whiteboard (screen 702), as is illustrated in Fig. 13 and Col. 13, Lines 8-21. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the whiteboard camera of Rodriguez, with the system of Konopka. One would have been motivated to do so because by providing an overview of the meeting room would allow the external

participants in the meeting view all of the participants in the meeting, not just the principle speaker, thus allowing for a more real-life interactive experience during the videoconference, and by providing the whiteboard camera, the external users can easily view materials presented on a whiteboard that may not normally be captured by presenter view cameras.

26. In regard to **claim 52**, the limitations of claim 51 are taught above, and the Ippolito reference further discloses that the system comprises a network (electronic Communications network 17) connecting the meeting server (video conference management unit 16) to at least one remote meeting participant, wherein the network is used to broadcast meeting images and audio from the server (16) to participants and received audio and images from the remote meeting participants at the server. Please refer to Fig. 1 and Col. 1, Lines 26-47.

27. In regard to **claim 53**, the limitations of claim 51 are again taught above, and the Taylor reference teaches that the system comprises an archive server (meeting archive database 60) for performing processing required to playback recorded meeting data. Please refer to Fig. 15 and Col. 13, Lines 32-50.

28. In regard to **claim 54**, the limitations of claim 53 are set forth above, and the Taylor reference again teaches in Fig. 15 and Col. 13, Lines 32-50 that the system comprises one or more archive clients capable of laying back the captured images and synchronized audio.

29. **Claims 55-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konopka et al. (U.S. Pat. 5,850,250) in view of Tai et al. (U.S. Pat. 6,577,333), further in view of Taylor et al. (U.S. Pat. 7,113,201).**

30. In regard to **claim 55**, the Konopka reference teaches an automated system for capturing and viewing an event having event participants, the system comprising multiple cameras of different types (front camera 111, rear camera 211, and document camera 115) simultaneously capturing images of different sub-events occurring in a space associated with an event (i.e. capturing images of different speakers in a classroom, or a document placed on a document stand), a controller (camera control 113) that determines which view of the front camera to display (i.e. which student to display while speaking), an event server (CODEC machine 45 in network cabinet 101) that processes the event data in substantially real time, and one or more clients in network connection (remote classrooms) with said server (45) that allows viewing of the events (See Figs. 1-4 and Col. 6, Line 19 - Col. 8, Line 29). What Konopka fails to explicitly teach is a virtual director that automatically determines which view of the multiple cameras of different types to display based on the position of a person speaking and the ability to track a person speaking in the captured images and audio signals received, and switches between the multiple cameras of different types to display a view of one of the different sub-events, and further that the server is not only capable of broadcasting the sub-events, but also of recording the captured sub-events.

Also In analogous art, Tai discloses an automated system for capturing and viewing an event having event participants, wherein the system comprises multiple

cameras of different types (i.e. a remote view camera C4 is positioned so as to capture a view of event participants in the space, and a presenter view camera, any of cameras C1-C3, positioned so as to capture a speaking presenter) capturing images of sub-events occurring in a space associated with an event, and a virtual director (video autoselector 40) that automatically determines which view of the multiple cameras of different types to display (via video switch 50 video output) by determining if a person is speaking based on the audio signals (via microphones A1- A3), and if so a camera view captured by one of cameras C1-C3 or C4 is used (See Figs. 2 and 6, Col. 3, Line 26 - Col. 4, Line 8, and Col. 6, Line 52 - Col. 7, Line 17). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated virtual director, as taught by Tai, with the broadcasting of the captured sub-events via multiple cameras of different types, as shown by Konopka. One would have been motivated to do so because by using a virtual director to automatically determine which view of the multiple cameras of different types to display, the presenter (or another "director" in the room) does not have to manually select the camera views to be broadcast or recorded, thus making for a much more natural selection of a video source and allowing the presenter to conduct a meeting without undue interference of operating camera controls.

Also in analogous art, Taylor discloses an automated system of capturing and viewing an event (videoconference) having a multiple cameras (2-1, 2-2, 2-3, etc.) simultaneously capturing images of different sub-events, wherein a server (computer 20) is capable of recording the captured sub-events, as is taught in Fig. 1 and Col. 2,

Lines 21-36. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated and the recording of the captured sub-events by the server, as taught by Taylor, with the broadcasting of the captured sub-events via multiple cameras of different types, as shown by Konopka. One would have been motivated to do so because by recording events captured during a videoconference, both the local users and external users can review contents from the meeting that they may have missed or want to reevaluate, and they may do so based on a specific subset of archived data regarding a specific person or object captured (as taught by Taylor in Col. 1, Lines 11-17). Doing so allows a user to save valuable time sorting through the archived data that they deem pertinent.

31. In regard to **claim 56**, the limitations of claim 55 are taught above, and the Taylor reference further discloses an archive server (meeting archive database 60) which acts as a store for the event data, as is again taught in Col. 13, Lines 39-57.

32. In regard to **claim 57**, again the limitations of claim 55 are taught above, and the Konopka reference further teaches that the event server (CODEC machine 45) performs both acquiring of audio and video from the capture devices and providing the audio and video to the client, as is disclosed in Col. 9, Line 8 - Col. 10, Line 4.

33. Claims 69, 71, and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konopka et al. (U.S. Pat. 5,850,250) in view of Ippolito et al. (U.S. Pat. 6,072,522), further in view of Rodriguez, Jr. et al. (U.S. Pat. 6,179,426),

further in view of Tai et al. (U.S. Pat. 6,577,333), and still further in view of Tosaya (U.S. Pat. 6,549,230).

34. In regard to **claim 69**, the Konopka reference teaches a system for conducting a distributed meeting comprising multiple cameras of different types (front camera 111, rear camera 211, and document camera 115), wherein the rear camera 211 acts as a presenter camera for capturing images of an overview of the meeting room in the area where the presenter (or teacher) would typically be presenting, and a controller (camera control 113) that automatically determines which view of the front camera to display (i.e. which student to display while speaking) and switches to the determined view of the associated camera to display a view of one of the different sub-events (i.e. the speaking student or teacher) (See Figs. 1-4 and Col. 6, Line 19 - Col. 8, Line 29). What Konopka fails to teach is that the system comprises a 360-degree camera for capturing images of participants in a meeting in substantially 360 degrees about the 360-degree camera, and a whiteboard camera for capturing images of contents on a whiteboard (similar to the Konopka document camera), and a virtual director that automatically determines which view of the multiple cameras of different types to display based on determining if a person is speaking and is positioned in a certain manner relative to one of the cameras and the ability to track the person speaking, and switches between the multiple cameras of different types to display a view of one of the different sub-events.

In analogous art, Ippolito teaches a system for conducting a distributed meeting, wherein the system comprises a 360-degree camera (cameras 130) for capturing images of meeting participants in a meeting (videoconference, etc.) in substantially 360

degrees about the 360 degree camera, a microphone array (microphones 120) for capturing the audio of the meeting that is synchronized with the images captured by the 360-degree camera, and a meeting server (video conferencing management unit 16) for performing processing required to broadcast meeting data (See Fig. 8 and Col. 13, Line 27 - Col. 14, Line 28). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the 360-degree camera of Ippolito, with the system of Konopka. One would have been motivated to do so because providing an overview of the meeting room would allow the external participants in the meeting view all of the participants in the meeting, not just the principle speaker, thus allowing for a more real-life interactive experience during the videoconference, and by providing the 360-degree view cameras, the external users are given a more real-life interactive experience during the videoconference by providing view of the entire meeting facility.

Also in analogous art, Rodriguez teaches a whiteboard camera (camera 756) used to capture contents written on a whiteboard (screen 702), as is illustrated in Fig. 13 and Col. 13, Lines 8-21. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the whiteboard camera of Rodriguez, with the system of Konopka. One would have been motivated to do so because by providing an overview of the meeting room would allow the external participants in the meeting view all of the participants in the meeting, not just the principle speaker, thus allowing for a more real-life interactive experience during the videoconference, and by providing the whiteboard camera, the external users can easily

view materials presented on a whiteboard that may not normally be captured by presenter view cameras.

Also In analogous art, Tai discloses an automated system for capturing and viewing an event having event participants, wherein the system comprises multiple cameras of different types (i.e. a remote view camera C4 is positioned so as to capture a view of event participants in the space, and a presenter view camera, any of cameras C1-C3, positioned so as to capture a speaking presenter) capturing images of sub-events occurring in a space associated with an event, and a virtual director (video autoselector 40) that automatically determines which view of the multiple cameras of different types to display (via video switch 50 video output) by determining if a person is speaking and is positioned in a certain manner relative to one of the cameras (via microphones A1- A3), and if so a camera view captured by one of cameras C1-C3 or C4 is used (See Figs. 2 and 6, Col. 3, Line 26 - Col. 4, Line 8, and Col. 6, Line 52 - Col. 7, Line 17). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated virtual director, as taught by Tai, with the broadcasting of the captured sub-events via multiple cameras of different types, as shown by Konopka. One would have been motivated to do so because by using a virtual director to automatically determine which view of the multiple cameras of different types to display, the presenter (or another "director" in the room) does not have to manually select the camera views to be broadcast or recorded, thus making for a much more natural selection of a video source and allowing the presenter to conduct a meeting without undue interference of operating camera controls.

Also in analogous art, Tosaya discloses a portable video conferencing device (1000) that contains a camera (1110) to capture images of meeting participants in a meeting room, wherein the portable video conferencing device performs processing required to broadcast the images and meeting data, as is taught in Figs. 1 and Col. 7, Line 28, Col. 9, Line 18. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the integrated computer of Tosaya with the 360-degree camera of Ippolito, as by incorporating a computer into the camera, the system becomes far more portable and allows for easier initial set-up by the event participants (i.e. there is no external computer necessary to conduct the videoconference).

35. In regard to **claim 71**, the limitations of claim 69 are set forth above, and the Ippolito reference further teaches that the system comprises a microphone array (radial array of audio microphones 120) for capturing the audio of the meeting that is synchronized with the images captured by the 360-degree camera (video cameras 130). Please refer to Fig. 8 and Col. 13, Line 27 - Col. 14, Line 28.

36. In regard to **claim 72**, the limitations of claim 69 are taught above, and the Ippolito reference further teaches that the associated meeting data comprises audio that is synchronized with the images, as is taught in Col. 13, Line 27 -Col. 14, Line 28.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISS S. YODER III whose telephone number is (571)272-7323. The examiner can normally be reached on M-F: 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lin Ye can be reached on (571) 272-7372. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CSY
Examiner, Art Unit 2622

/Tuan V Ho/
Primary Examiner, Art Unit 2622